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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,813	11/18/2003	Agapios Kyriacos Agapion	2002U/019.US	5193

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EXAMINER

TESKIN, FRED M

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/715,813	Applicant(s) AGAPIOU ET AL.	
	Examiner Fred M Teskin	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
 4a) Of the above claim(s) 9 and 16-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-14 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Applicant's election without traverse of the species (1), as identified in the prior Office action, and of carbon dioxide as the single disclosed species of deactivating agent, in the reply filed on August 30, 2004, is acknowledged.

Claims 9 and 16-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on August 30, 2004. Accordingly, claims 1-8 and 10-15 are currently subject to examination on the merits.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 expresses the concentration of water vapor in the reactor in terms of parts per million by weight based on "the weight of the bed". There is no antecedent basis for "the bed" limitation in claim 14 or its parent claim. It appears that claim dependency may be incorrect (*cf.*, claim 3, line 2). Clarification and appropriate correction are required.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5672666 to Muhle et al ("Muhle").

The claimed subject matter is a process for transitioning from a first polymerization reaction conducted in the presence of a first catalyst to a second polymerization reaction conducted in the presence of a second catalyst, wherein the first and second catalysts are incompatible, the process comprising:

(a) discontinuing the introduction of the first catalyst into a reactor wherein the first catalyst comprises a metallocene catalyst;

(b) introducing and dispersing in the reactor at least one deactivating agent selected from, *inter alia*, carbon dioxide, in an amount sufficient to substantially halt the first polymerization reaction;

(c) purging the reactor with an inert gas to substantially remove unreacted deactivating agent from the reactor; and

(d) introducing the second catalyst into the reactor wherein the second catalyst comprises a traditional Ziegler-Natta catalyst.

Muhle describes a process for transitioning between at least two incompatible catalysts and/or catalyst systems in a polymerization process, the process comprising the self-same steps: see column 2, lines 15-25 and column 6, lines 15-25, detailing how the deactivating agent is introduced into the reactor for a period of time sufficient to "substantially deactivate the catalyst in the reactor and thus, *substantially prevent further polymerization from occurring*" and identifying carbon dioxide as "[T]he preferred deactivating agent". Subsequent purging of the reactor with an inert gas, viz., nitrogen, is detailed in column 11, lines 51-55. Preference also is expressed for a continuous gas phase process in a fluidized bed reactor, column 2, lines 61-63.

As to type of incompatible catalysts, Muhle states at least twice that its invention provides "a process for transitioning between an olefin polymerization reaction utilizing a traditional Ziegler-Natta catalyst system to an olefin polymerization reaction utilizing a metallocene catalyst system *and vice-versa*." Column 1, lines 8-12 (italics added; similar disclosure appears at column 2, lines 37-41). Thus, Muhle plainly indicates the reverse of the first-mentioned transitioning direction – i.e., transitioning between an olefin polymerization reaction utilizing a metallocene catalyst system to an olefin polymerization reaction utilizing a traditional Ziegler-Natta catalyst – is an embodiment of the described invention. This disclosure is deemed of sufficient specificity that the art-skilled would have immediately envisaged transitioning from a first polymerization reaction conducted in the presence of a metallocene catalyst to a second polymerization reaction conducted in the presence of a traditional Ziegler-Natta catalyst

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utilizing the manipulative steps detailed in Muhle, and thus claims 1-4 and 10 are anticipated.

Alternatively, since the above-cited teachings would have signaled to those of ordinary skill the efficacy of the Muhle process regardless of which incompatible catalyst – metallocene or Ziegler-Natta - is used to promote the first polymerization reaction, it would have been obvious to one so skilled to apply that process to transitioning from a polymerization reaction utilizing a metallocene catalyst to one utilizing a traditional Ziegler-Natta catalyst, and thereby arrive at the present invention.

Claims 5-8 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muhle, alone or with reference to US 6245868 to Agapiou et al ("Agapiou").

Concerning claims 5-8: it would have been obvious, when transitioning from a metallocene catalyst to a traditional Ziegler-Natta catalyst as per Muhle, to introduce a transition agent into the reactor since (i) Muhle details a catalyst preparation (column 10, lines 22-30) wherein Kemamine AS-990 is added as a surface modifier to the silica carrier of a metallocene catalyst which is then utilized in a fluid-bed polymerization (Example 1); (ii) Kemamine AS-990 has the formula $C_{18}H_{37}N(CH_2CH_2OH)_2$ as evidenced by Agapiou (column 14, lines 36-39), which denotes a diethoxylated stearyl amine; and (iii) the claimed transition agent embraces ethoxylated stearyl amine (claims 6-7), which may be supported on a solid carrier material (claim 8).

As to claims 11-13: Muhle teaches the addition of triethylaluminum (TEAL), a species of the claimed passivator, to the reactor prior to introduction of the Ziegler-Natta

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catalyst to catalyze the first polymerization reaction (column 10, lines 50-52). Muhle further teaches that TEAL functions as a scavenger or activator of the Ziegler-Natta catalyst (column 7, lines 10-15 and 40-42). That being the case, it would have been obvious, when reversing the direction of transitioning in Muhle, to add TEAL prior to introducing the second catalyst in the expectation of realizing equivalent scavenging and/or activation of the traditional Ziegler-Natta catalyst in the second polymerization reaction.

Claim 15 is objected to as being dependent on a rejected base claim but would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claim. Claim 14 would be allowable if amended or rewritten to overcome the rejection under 35 U.S.C. 112 set forth in this Office action and to include all the limitations of the base claim and any intervening claim.

The following is a statement of reasons for the indication of allowable subject matter: The step of reactor purging to control water vapor concentration as per claim 14 or 15 is not found in the prior art in a context that would render the process defined by these claims anticipated or obvious to a person having ordinary skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner F. M. Teskin whose telephone number is


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(571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FMTeskin/03-09-05


FRED TESKIN
PRIMARY EXAMINER
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